

CLAIMS

What is claimed is:

1. A system for processing image data in a digital image device,
5 said system comprising:

a bus;

a central processing unit coupled to said bus;

an image processing subsystem coupled to said central processing
unit for processing said image data using a particular processing mode;

10 a memory unit coupled to said bus, said memory unit having stored
therein an operating system comprising instructions executed by said
central processing unit to manage said image processing subsystem;

said memory unit further having a data structure corresponding to
said processing mode, said data structure comprising a plurality of buffers
15 for managing said image data for said image processing subsystem during
image processing, said data structure providing an interface between said
operating system and said image processing subsystem, such that said
operating system is independent of said processing mode used by said
image processing subsystem; and

20 a data storage element coupled to said bus for storing said image data
after image processing.

2. The system of Claim 1 wherein said digital image device is a
digital camera.

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3. The system of Claim 1 further comprising a data line writer element coupled to said data structure for writing data to said data storage element, said data line writer element providing an interface between said image processing subsystem and said data storage element that is independent of said processing mode used by said image processing subsystem.

4. The system of Claim 1 further comprising a spooler element coupled to said memory unit, wherein said spooler element is for transferring said image data into said data structure.

5. The system of Claim 4 further comprising a data line reader element coupled to said spooler element for reading said image data from said spooler element into said data structure.

6. The system of Claim 5 wherein said processing mode used by said image processing subsystem comprises a plurality of image processing modules and a JPEG software element.

7. The system of Claim 5 wherein said processing mode used by said image processing subsystem comprises a digital signal processor and a JPEG hardware element for processing said image data.

8. The system of Claim 5 wherein said processing mode used by said image processing subsystem comprises an image processing hardware system.

9. The system of Claim 8 wherein said image processing hardware system reads said image data using a direct memory access (DMA) technique.

5 10. The system of Claim 8 wherein said data line reader element is used to identify a memory buffer where said image data is located.

11. The system of Claim 8 wherein said data line reader element is used to create a memory buffer for said image data and to write said image data to said memory buffer.

12. The system of Claim 1 wherein said image processing subsystem applies a water mark to said image data, said water mark comprising time and date information associated with said image data.

15 13. A method for processing image data in a digital image device, said method comprising the steps of:

a) creating a data structure corresponding to an image processing mode used by an image processing subsystem of said digital image device;

20 b) initializing said image processing subsystem and said data structure;

c) forwarding said image data to said data structure;

d) processing said image data using said processing mode used by said image processing subsystem; and

25 e) writing said image data to a data storage element.

14. The method of Claim 13 further comprising the steps of:
initializing a spooler element, said spooler element for transferring
said image data into said data structure;
initializing a data line reader element, said data line reader element
5 for reading said image data from said spooler element into said data
structure; and
initializing a data line writer element, said data line writer element
for transferring said image data to a storage element after image
processing.

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15. The method of Claim 13 wherein said step d) comprises
processing said image data using a plurality of image processing modules
and a JPEG software element.

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16. The method of Claim 13 wherein said step d) comprises
processing said image data using a digital signal processor and a JPEG
hardware element.

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17. The method of Claim 13 wherein said step d) comprises
processing said image data using an image processing hardware system.

18. The method of Claim 17 wherein said image processing
hardware system reads said image data using a direct memory access
(DMA) technique.

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19. The method of Claim 17 wherein said data line reader element is used to identify a memory buffer where said image data is located.

20. The method of Claim 17 wherein said data line reader element
5 is used to create a memory buffer for said image data and to write said image data to said memory buffer.

21. The method of Claim 13 wherein said image processing
subsystem applies a water mark to said image data, said water mark
10 comprising time and date information associated with said image data.

22. A system for processing image data in a digital camera, said system comprising:

a bus;

15 a central processing unit coupled to said bus;

an image processing subsystem coupled to said central processing unit for processing said image data using a particular processing mode;

a memory unit coupled to said bus, said memory unit having stored therein an operating system comprising instructions executed by said
20 central processing unit to manage said image processing subsystem;

said memory unit further having a data structure corresponding to said processing mode, said data structure comprising a plurality of buffers for managing said image data for said image processing subsystem during image processing;

25 a data storage element coupled to said bus for storing said image data after image processing;

a data line writer element coupled to said data structure for writing

image data to said data storage element, said data line writer element providing an interface between said image processing subsystem and said data storage element that is independent of said processing mode used by said image processing subsystem;

5 a spooler element coupled to said memory unit, wherein said spooler element is for transferring said image data into said data structure; and

a data line reader element coupled to said spooler element for reading said image data from said spooler element;

said data structure, said spooler element and said line reader
10 element providing an interface between said operating system and said image processing subsystem, such that said operating system is independent of said processing mode used by said image processing subsystem.

15 23. The system of Claim 22 wherein said processing mode used by said image processing subsystem comprises a plurality of image processing modules and a JPEG software element.

20 24. The system of Claim 22 wherein said processing mode used by said image processing subsystem comprises a digital signal processor and a JPEG hardware element for processing said image data.

25 25. The system of Claim 22 wherein said JPEG hardware element applies a water mark to said image data, said water mark comprising time and date information associated with said image data.

26. The system of Claim 22 wherein said processing mode used by said image processing subsystem comprises an image processing hardware system.

5 27. The system of Claim 26 wherein said image processing hardware system reads said image data using a direct memory access (DMA) technique.

10 28. The system of Claim 26 wherein said data line reader element is used to identify a memory buffer where said image data is located.

15 29. The system of Claim 26 wherein said data line reader element is used to create a memory buffer for said image data and to write said image data to said memory buffer.

30. The system of Claim 22 wherein said image processing subsystem applies a water mark to said image data, said water mark comprising time and date information associated with said image data.

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